



Managing Logistics Data

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DRID 48 IPT



OUTLINE

- **Information Superiority**
- **Data: Too important for only the techies!**
- **Disciplined data management - a key to interoperability**
- **Proposed Data Strategy**
- **Needed Support**



JV2010 ---- Information Superiority

- **INFORMATION SUPERIORITY**

- **FOCUSED LOGISTICS**

- **Fusion of information, logistics and transportation technologies**

DEVIL is in the DETAILS and one of the Details is DATA!





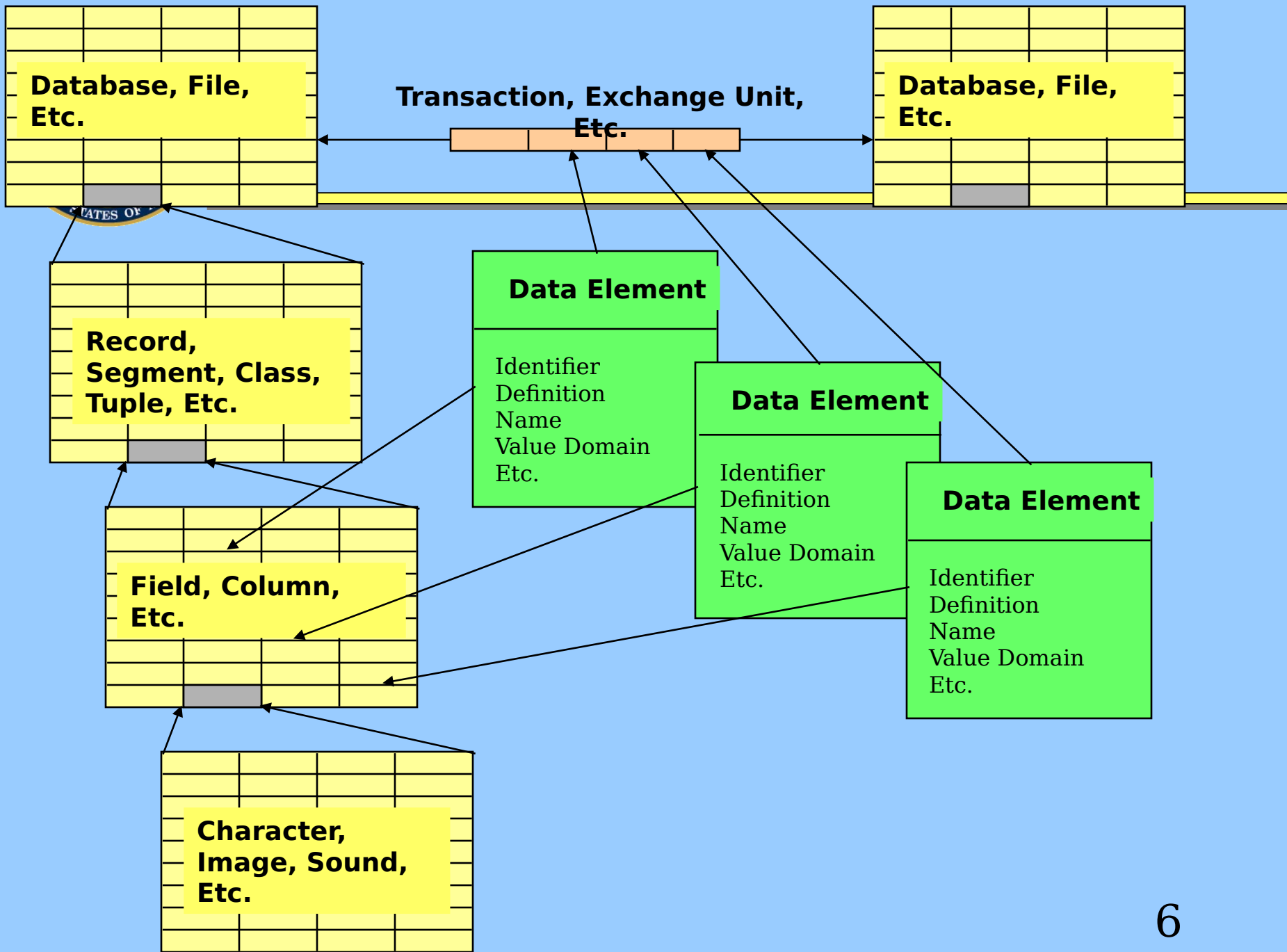
2 Major Keys to Interoperability

- **TECHNICAL - DISA**
 - **DII/COE**
 - **Joint Technical Architecture**
- **DATA**
 - **C4ISR Core Architecture Data Model - DISA**
 - **Data Management**
-MEANINGS/RELATIONSHIPS/BUSINESS RULES



What does DATA have to do with DRID 48?

- **Transaction Sets CONTAIN data elements**
- **ANSI X12 & XML are “markers” that Surround Data**
- **IF DATA IS NOT CLEAN - -ANSI X12, XML, etc will only move bad data faster!**





Why Should a Functional Care About Data?

- **Data verifies operations/business policies & procedures**
- **If poor data:**
 - **User can't trust for decision making**
 - **Error rates unacceptably high**
 - **Look for other data sources**
 - **Manually collect data**
 - **Create own "homegrown" systems**
 - **Interoperability almost impossible to obtain**
 - **Increased costs to develop/maintain IT**



Known Data Deficiencies

- **Disconnect between policy and execution**
- **No formal processes:**
 - **Build/maintain/synchronize reference tables**
 - **Authoritative source for PMs to go to**
 - **Maintain code/definition currency**
- **CLDM and GCCS data models not linked**
- **Many programs developing own Data Dictionary
OUTSIDE DDDS**



Annual Cost of Data Errors - *DTS

- **7M transactions/mo**

2% system data errors = 140K errors

60% need human intervention (X 140K errors)

**= 84K errors at 15-20 minutes/error to fix = 250 Manyrs
or**

\$12M/yr

\$12.0M /yr IT error costs

1.3M /yr Frustrated cargo

1.0M /yr Re-order or goods (shipment "lost")

\$13-15M for ONE Log Subfunction due to data problems!



GOOD DATA MANAGEMENT CAN HELP SOLVE PROBLEMS

- 72 Hour TPFDD
- CINC 129
- JAMSS
- TRANSCOM Reference Tables
- TCAIMS

*Our number one goal is to solve
problems of significance to the
Warfighter using good data management
discipline*



Issues Affecting Data

- **Policy Changing**
 - **DoD 5000 rewrite**
 - **C3I draft guidance and policy memoranda (TBD)**
 - **Proposed rewrite of DoDD 8320 or ?**
 - **LFSG - Governance group**
 - **Technology/XML**
 - **SHADE?**
- **Scarce resources for Data Management**
 - **DoD Enterprise**
 - **Logistics Enterprise**



PROPOSED APPROACH

- **Support DOD Enterprise Data Management (DODD 8320 or ?)**
- **Budget for Enterprise Logistics Data Management**
- **Adopt a recognized data methodology/apply to problems**
- **Establish single point for PMs to access Reference tables**
- **Establish a Data Integrity/Quality Program**
- **Establish Corporate Priorities**
 - **72 Hour TPFDD, CINC 129, TRANSCOM Ref Tables, TC-
AIMS, JAMSS**



DATA is CORPORATE ASSET Resources Required to Manage!

- **Logistics Data is “owned” by the DoD Enterprise**
- **\$200K currently on contract to support DoD Logistics Data enterprise (FDAd)**
- **Log FDAd submitting budget through DLA (01-06)**
 - **\$1.5M TRANSCOM (Current POM TWCF O&M to Air Mobility Command) - Should be Enterprise bill**
 - **\$2.5M Enterprise Logistics Data Mgt**
 - **\$4-3M/year TOTAL through FYDP**

PAY FOR DATA NOW OR KEEP PAYING !



NEEDED SUPPORT

- **Commit to a disciplined data management approach to ensure data integrity internal to your transaction sets**
- **Work with your Service/agency CDAd and component Log FAd to coordinate DRID 48 IPT with data mgt/integrity**
- **Identify resources in Service/Agency POM used by each log program for data management**
- **Support strong Data Management as a Corporate Logistics and GCCS/GCSS Enterprise Bill (DLA POM)**



BACKUPS



BUILDING THE LOGISTICS FUTURE THROUGH INFORMATION SYSTEM MODERNIZATION

**LOGISTICS PROCESSES
PROJECT AND SUSTAIN THE FORCE
WITH CONFIDENCE & EFFICIENCY**

JOINT LOGISTICS/WARFIGHTING APPLICATIONS

ARMY LOGISTICS APPLICATIONS

USMC LOGISTICS APPLICATIONS

NAVY LOGISTICS APPLICATIONS

AIR FORCE LOGISTICS APPLICATIONS

DLA LOGISTICS APPLICATIONS

TRANSCOM LOGISTICS APPLICATIONS

GOVERNANCE PROCESS

PRODUCT DATA (System Structure and Logistics Ops)

ASSURED INFORMATION INFRASTRUCTURE



Data Standardization Mandates

DoD 5000.2-R "It is DoD policy to develop software systems based on... use of standard data. Additional guidance is contained in DoDD 8320.1"

DoDD 8000.1 "It is DoD policy that ... standard DoD data definitions shall be used for all ISs, to include the interfaces between weapon systems and the ISs"

Data Administration: "The responsibility for the definition, organization, supervision and protection of data within an enterprise."

Joint Technical Architecture
"The mandated standards for DoD data definitions are DoD 8320.1-M-1 and the DDDS"

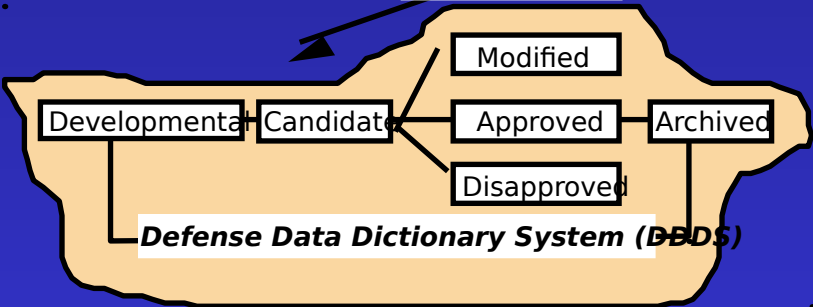
DoDD 8320.1
DoD Data Administration

DoD 8320.1- M - 1
Data Standardization Procedures

"...applies to data elements and values that are unique to the operation of equipment and software that are an integral part of a weapons system and related test equipment"

"Levy burden and cost of conversion to nonstandard data, regardless of the origin of the requirement for the information on the Component using nonstandard data"

Data Element Life Cycle



- Responsibilities:**
- **Functional Areas**
 - USD (A)
 - USD (C3I)
 - ...
 - **Components**
 - Army
 - Navy
 - Air Force
 - Defense Agencies



MEDIATION vs DATA MANAGMENT

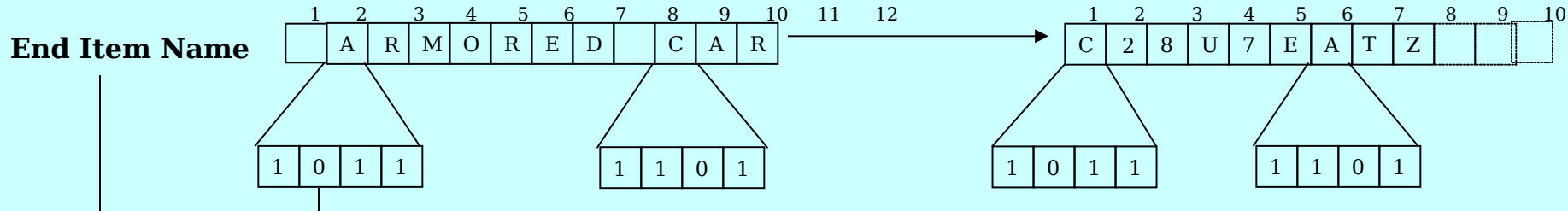
- **MEDIATION helps solve data STRUCTURE issues**
- **Data Management solves SEMANTICS (meaning)**
- **Data Management standardizes data value domains**
 - **enumeration**
 - **range**
 - **valid/invalid lists**

DATA STRUCTURAL SEMANTICS

Data Element
Field Name
Column Name
Attribute

SYSTEM "A"

SYSTEM "B"



DATA STRUCTURE TRANSLATOR
[API / MEDIATOR / INTERFACE]

Sym	Sys "A"	=	Sys "B"
A	1 0 1 1		1 1 0 1
C	1 1 0 1		1 0 1 1

DATA ELEMENT METADATA		
Metadata	Sys "A"	Sys "B"
Field Size	12	9
Justify	Right	Left
Data Type	Alpha	Alpha/Numeric
Etc....		

A R M O R E D C

A R M O R E D C A R

Data Mediators / Translators Can Translate the Structural Semantics of Data Elements Between Systems - But They Do **Not** Translate "Meaning"

DATA "MEANING" SEMANTICS

The "meaning" that is conveyed by the content of a Data Element is contained within of the data element as it is defined by the users of the data element. Senders and recipients of content of a data element must agree on its definition to be sure of agreement as to its

SCENARIO

- ◆ **CINC Question (Joint Operation):** How many available "full up rounds" of AIM-9 missiles have on-hand ready to load out for tomorrow's 0600 fringed strike package?
- ◆ **Staff Officer:** Queries GCSS and reports 285 available full-up rounds of AIM-9 missiles

Data Elements →	JOINT GCSS						SERVICE GCSSs			Full-Up Round
	AIRCRAFT-MISSILE TABLE						USAF	USN	USMC	
	NSN	Name	Type	Due-In	Full-Up Round	Serviceable	AWM	AWP		
	98765432	AIM-7	xx	xx	xx	xx	xx	xx		xx
	98735163	AGM-65	xx	xx	xx	xx	xx	xx		xx
	98765412	AIM-9	1	110	285	260	5	20		142

◆ HOWEVER!! :

USAF Definition: A complete on-hand aggregation of major components comprising an AIRCRAFT-MISSILE

USN Definition: An AIRCRAFT-MISSILE in a fully assembled configuration of all its major components

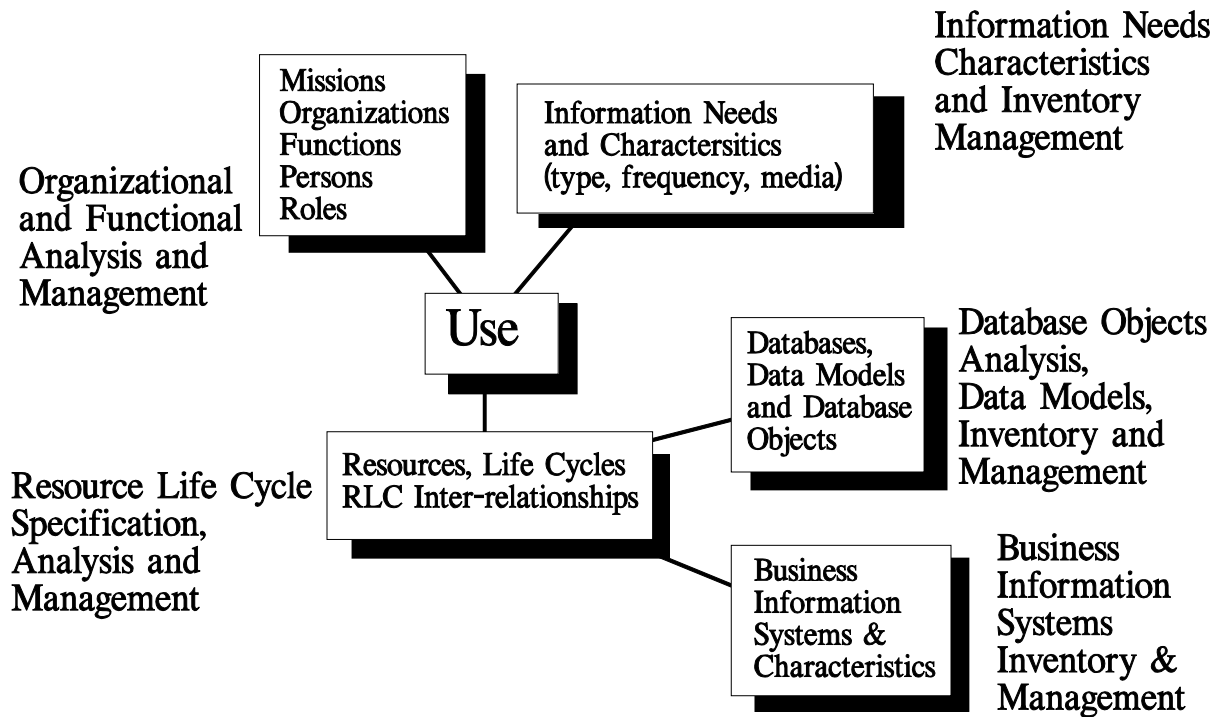
USMC Definition: An AIRCRAFT-MISSILE in a fully assembled configuration of all its major components that is bench checked serviceable and ready for immediate load out.

The data returned from the service GCSSs are not defined the same way and convey different meanings. A valid fact that the CINC can count on is that he has at least 77 "full-up rounds" of AIM-9 missiles available. The number reported by the staff officer of 285 cannot be trusted and lacks integrity.

NON-STANDARD DATA DEFINITIONS CREATE DATA INTEGRITY PROBLEMS

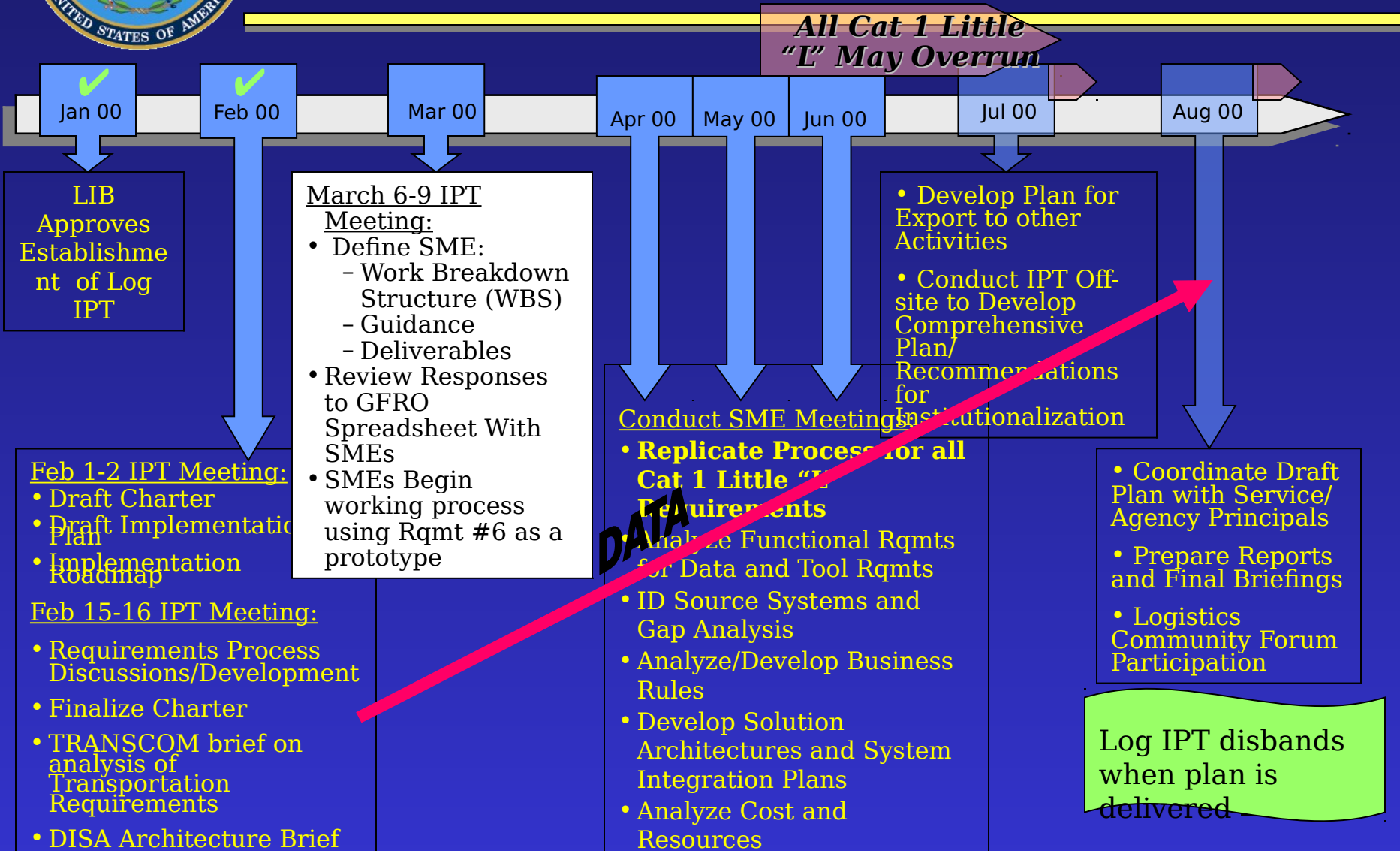


Metabase Domain





CINC GCSS Log IPT Proposed Timeline





Analysis of CINC GCSS Rqmt # 6: CLASS IX: Repair Parts

6. Provide timely and accurate information on the location and status of CLASS IX: Repair Parts

Joint warfighter is looking for visibility of class IX, repair parts, that are on-hand, in-transit or at the point of origin awaiting shipment. The information must be current, real-time information with projected departures and arrivals through each node of the distribution system.

- **Graphically depict the flow** of class IX bulk shipments into the theater, expected arrival time and depict bottlenecks or delays.
- **Project the readiness impacts** of in-bound class IX shipments on the overall material readiness.
- **Provide drill down capability** to find specific class IX repair parts by National Stock Number or requisition number to determine **exact location**.
- **Identify potential sources of supply** outside the normal DoD system (host nation support, commercial / vendor, and war reserve secondary items) that are suitable substitutes for required class IX repair parts.
- **Provide visibility** of all class IX from NICP to user level, including **both serviceable and unserviceable assets**, from which to make good procurement decisions.
- **Provide an analysis** to **graphically portray** the **impacts of shortages or delays** in the distribution of class IX repair parts on the operational readiness of forces within the theater by phase of the operation.
- **Provide an analysis or logistics estimate** as to the projected usage of class IX repair parts over the duration of a mission (by phase) to assess the impacts on force readiness.



DATA TEMPLATE TO MEET CINC 129

DISCIPLINED DATA APPROACH REQUIRED

- **Perform info gathering/analysis & enter into metabase**
- **Identify resources/resource life cycles (RLC) (states/nodes)**
- **Identify mission statements from functional decompositions**
- **Enter organizations/functions into metabase**
- **Enter LIS systems characteristics into BIS metabase module**
- **Crosswalks for above (Missions, Orgs, RLCs, & BISs)**
- **Identify redundancies, overlaps and gaps**
- **Identify data-gaps and propose “data projects”**
- **PROTOTYPE of data mapping process template by 1 July**
- **Final DELIVERABLE 1 August (if funded - 250K)**



LOGISTICS DATA MANAGEMENT OBJECTIVES

- Identify data collection systems and requirements [Functional]
- Identify interoperability data requirements and ensure definitions are compliant
 - with, or registered as, DoD standard data [Functional & Technical Data Management (DM)]
- Determine ways to ensure/improve quality and completeness of data [Technical & Functional DM]
- Establish process for translating data support requirements to operational needs [Functional & Technical DM]
- Identify planned investments in data collection and processing [Functional]
- Validate gaps in proposed infrastructure support to logistics operational data systems [Technical DM & Functional]
- Ensure data requirements support future logistics operational and system architectures [Technical DM & Functional]
- Re-align planned investments as necessary [Functional]



Whitemarsh's Knowledge Worker Framework

Viewpoint		Man-Machine Interface						Primary Responsibility
		Mission	Database Object	Business Information System	Business Event	Business Function	Organization	
Project	Deliverables	Mission	Database Object	Business Information System	Business Event	Business Function	Organization	Primary Responsibility
Specification	Scope	List of business missions	List of major business resources	List of business information Systems	List of interface events	List of major business scenarios	List of organizations	Architect
	Business	Mission hierarchies	Resource Life Cycles	Information sequencing and hierarchies	Event sequencing and hierarchies	Business scenario sequencing and hierarchies	Organization charts, jobs and descriptions	
Specification and Implementation	System	Policy hierarchies	Specified data models and Identified Database objects	Information system designs	Invocation protocols, input and output data, and messages	Best practices, quality measures and accomplishment assessments	Job roles, responsibilities, and activity schedules	Architect and Engineer
Implementation	Technology	Policy execution enforcement	Implemented data models and Detailed Database Objects	Information systems application designs	Presentation layer information system instigators	Activity sequences to accomplish business scenarios	Procedure manuals, task lists, quality measures and assessments	Engineer
	Deployment	Installed business policy and procedures	Operational data models	Implemented information systems	Client & server windows and/or batch execution mechanisms	Office policies and procedures to accomplish activities	Daily schedules, shift and personnel assignments	
Operation	Operations	Operating business	Application Interface data model	Operating information systems	Start, stop, and messages	Detailed procedure based instructions	Daily activity executions, and assessments	



Knowledge Worker Framework

Viewpoint		Mission	Man-Machine Interface					Primary Responsibility
Project	Deliverables		Machine		Interface	Man		
			Database Object	Business Information System	Business Event	Business Function	Organization	
Specification	Scope	13	5	6	1	8	10	Architect
	Business	12	6	6	1	15	14	
Specification and Implementation	System	8	6	5	0	28	18	Architect and Engineer
Implementation	Technology	3	0	0	0	18	14	Engineer
	Deployment	1	0	0	0	12	11	
Operation	Operations	1	0	0	0	8	8	

Allocation of the GAO Information Technology Critical Success Factor Issues



INDUSTRY FINDINGS: 84% of All IT projects either Fail or have significant delays ----- never was a systems problem!

**DEFINITION OF DATA INSANITY:
*KEEP DOING THE SAME THINGS YOU HAVE ALWAYS DONE, BUT EXPECT DIFFERENT RESULTS!***



What is Data Management's Business Value?

- **Gartner Group reports that data managed effectively yields following reduction benefits***
 - **10:1 Reduction in Data Elements**
 - **33% Reduction in Database Administration Efforts**
 - **33% Reduction in Storage**
 - **30% Reduction in Systems Maintenance**
- **Enforces standard semantics that are employed in names**
- **Standard semantics enable data element and data structure templates**
- **Makes it easy to map differently named data through standard semantics**

WHAT IS THE YEARLY COST OF MAINTENANCE FOR DOD?

***Statistics based on a survey of 18 companies that had formal data management function with 125 programmers on average staff**



Executive Template Checklist

FUNCTIONAL	Yes	No	N/A	MANAGEMENT	Yes	No	N/A	SYSTEMS	Yes	No	N/A
Mission/Process still required?				Mission Improvement?				Approved data access & sharing conventions?			
Outsourcing Evaluated?				Mission Cost Savings?				Established common user and industry interfaces?			
Reengineering Action?				IT improvement costs (and time)?				Enterprise computing & communications requirements?			
Measurable leadership approved outcome or financial metrics ?				Direct information acquisition?				Architecture promote rapid and continuing change?			
Commercial Best Practices?				Commercially available information service alternatives?				Management info automatic as by-product of operations?			
Stakeholders understand and agree on requirement(s)?				Commitment to inherent business processes of COTS?				Optimal use of proven commercial technology?			
<i>DoD Information Interoperability provided for through aggressive Data Management?</i>				<i>Committed to identifying shared data requirements and utilizing DoD standard data?</i>				<i>Utilizing DoD Data Standards Repository and proposing data standards as required?</i>			
Responsive DoD integrated enterprise supported?				Teaming with another Service/Agency when developing systems?							
Information Assurance requirements accommodated?				Project life cycle strategy, plan, & management controls?							
				Organic functional and technical expertise?							
				Risk mitigation strategy?							
				Approved cost, schedule, and performance baseline?							
				Thresholds and criteria developed to terminate?							



LOGISTICS FDA KEY RESPONSIBILITIES

- **Single approval authority for all DoD logistics standard data requirements**
- **Coordinates/integrates all DoD Logistics data activities (Components/other functionals)**
- **Developer and maintainer of the DoD Corporate Logistics Data Model (CLDM)**
- **Developer/enforcer of data management policies, procedures, products, and standards (DISA lead)**
 - *Defense Logistics Data Strategy*
 - *Defense Logistics Data Management Guidance*

The DoD Logistics FDA is the key to achieving the interoperability necessary to satisfy the Warfighters' needs



CONTINUING LOGISTICS FDAd REQUIREMENTS

1. Manage DoD Logistics Data Management Program

- **Develop, Review and Update Strategies, Policies, Guidance, and Procedures**
 - *Influence DoD Data policy*
 - *Defense Logistics Data Strategy*
 - *Management & Implementation Guidance*
 - *Chair Interoperability Working Groups*
- **Support CINC 129 Requirements/Program Mgrs**
- **Evaluate Program Progress (Performance Measurement)**



CONTINUING LOGISTICS FDAd REQUIREMENTS

- 2. Support the DoD Data Interoperability Program (Expand and Maintain the CLDM)**
 - **Capture full spectrum of Logistics functional processes (e.g., Maintenance, transportation, distribution, disposal, asset visibility, links to hazardous material ...)**
 - **Cross-Functional/Component review and consultation (e.g., Health Affairs, Environmental, TRANSCOM, Army, Navy, Air Force ...)**
 - **DoD data standardization proposal package development (e.g., GCSS-A, LOGSA LIDB ...)**
 - **Map and match legacy data to DoD standards**



CONTINUING LOGISTICS FDAd REQUIREMENTS

3. Support ANSI X12/DLMS Transition

- **ANSI X12 Logistics Qualifier Codes**
 - Review and approve proposal packages
 - Incorporate into CLDM
 - Expand and maintain as required with process changes

- **DLSS/DLMS/DoD Data Standard Cross Reference Database**
 - Validate standard data requirements



CONTINUING LOGISTICS FDAd REQUIREMENTS

4. Improve Accessibility of Logistics Data Standards

- **Create DoD Logistics Data Standards Web Page**
- **Publish CLDM, Logistics Qualifier Codes, Logistics Data Cross Reference Database, Data Standardization Proposals**



INDUSTRY VIEWS

- **ORACLE - Current process on Data takes 60+ days**
 - Coding delays
 - Increased System development costs

- **COMPUTER WORLD - Survey of 223 CIOs**
 - #3 IT Priority is Data Mgmt